



The Relationship Between the Duration of One-Month Injectable Contraceptive Use and Weight Gain Among Long-Term Acceptors at PMB Bunda Bidan Hj. Mardiah Hayati

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Abstract. One-month injectable contraception is widely used among women of reproductive age because of its effectiveness and convenience. However, prolonged use may be associated with weight gain, which can affect users' contraceptive experience and adherence. This study aimed to determine the relationship between the duration of one-month injectable contraceptive use and weight gain among long-term acceptors at PMB Bunda Bidan Hj. Mardiah Hayati. A quantitative analytical observational study with a cross-sectional design was conducted among active one-month injectable contraceptive acceptors who met the inclusion criteria. A total of 60 respondents were selected using total sampling. Data were collected through structured interviews and medical record documentation and analyzed using descriptive statistics and the Chi-square test with a 95% confidence level ($\alpha = 0.05$). Most respondents had used one-month injectable contraception for more than 12 months (70.0%), and 66.7% experienced weight gain. The analysis showed a significant relationship between the duration of contraceptive use and weight gain ($p = 0.003$). Respondents who had used injectable contraception for more than 12 months were more likely to experience weight gain than those who had used it for 6–12 months. The duration of one-month injectable contraceptive use was significantly associated with weight gain. Regular weight monitoring and counseling on healthy lifestyle practices are recommended for long-term users.

Keywords: Duration of Use; Family Planning Acceptors; Hormonal Contraception; One-Month Injectable Contraception; Weight Gain.

1. Introduction

Family planning (FP) programs constitute a fundamental strategy for improving reproductive health outcomes, reducing maternal mortality, and promoting the development of healthy and prosperous families. Among the various contraceptive options available, the monthly injectable hormonal contraceptive has become one of the most widely utilized methods among women of reproductive age because of its convenience, high effectiveness, easy accessibility, and reliable protection against unintended pregnancy. Despite these advantages, hormonal contraceptive use is frequently associated with several adverse effects that may influence users' satisfaction and continuation of the method. One of the most commonly reported concerns is weight gain, which often discourages women from continuing contraceptive use and may ultimately increase the likelihood of unintended pregnancies. Therefore, understanding the factors associated with weight gain among users of injectable contraceptives is essential for improving the quality of contraceptive counseling and reproductive health services (World Health Organization [WHO], 2023; Ministry of Health of the Republic of Indonesia, 2023).

Monthly injectable contraceptives contain a combination of estrogen and progestin that prevents pregnancy through multiple mechanisms, including suppression of ovulation, increased cervical mucus viscosity, and alteration of the endometrial environment. In addition to providing highly effective contraception, these hormonal components may influence metabolic processes, promote fluid retention, and stimulate appetite in some women. Such physiological changes may contribute to body weight gain, particularly among women who use injectable contraceptives for extended periods. Nevertheless, weight gain is not experienced uniformly by all users, as it is also influenced by several individual factors, including dietary habits, physical activity, age, nutritional status, and genetic predisposition.

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Consequently, further investigation is required to clarify the relationship between the duration of monthly injectable contraceptive use and changes in body weight while considering these potential contributing factors (Cunningham et al., 2022; WHO, 2023).

Globally, hormonal contraception remains one of the most commonly used methods of family planning among women of reproductive age. According to the World Health Organization, hundreds of millions of women worldwide rely on modern contraceptive methods, with injectable contraceptives representing one of the most prevalent options, particularly in low- and middle-income countries. In Indonesia, injectable contraception continues to be the dominant modern contraceptive method. Data from the National Population and Family Planning Board (BKKBN) indicate that most active family planning participants prefer injectable contraceptives because they are readily available, relatively affordable, and do not require invasive procedures. Given the widespread utilization of this method, evaluating its potential adverse effects, including weight gain, has become an important component of reproductive health care and contraceptive service quality improvement (BKKBN, 2024; WHO, 2023).

Weight gain is one of the most frequently reported concerns among users of hormonal contraceptives and has become an important issue for both healthcare providers and contraceptive users. An increase in body weight may negatively affect body image, reduce satisfaction with the chosen contraceptive method, and even contribute to premature discontinuation of contraceptive use. Previous studies have reported that women using hormonal contraceptives may experience an average weight gain ranging from approximately 1 to 5 kilograms over several years of use, although the magnitude of this change varies considerably among individuals. These findings indicate that weight gain is a multifactorial phenomenon influenced by various biological and behavioral factors. Therefore, a comprehensive understanding of its underlying determinants is essential to enable healthcare professionals to provide accurate counseling and support women in selecting the most appropriate contraceptive method (Kaunitz & Darney, 2021; Ministry of Health of the Republic of Indonesia, 2023).

Numerous studies have investigated the association between hormonal contraceptive use and changes in body weight. Most have reported a tendency toward weight gain among injectable contraceptive users, particularly among long-term users. However, other studies have suggested that changes in body weight cannot be attributed solely to hormonal contraception, as lifestyle modifications, excessive caloric intake, reduced physical activity, and increasing age also play substantial roles. The inconsistency of these findings indicates that the relationship between the duration of injectable contraceptive use and weight gain remains inconclusive. Consequently, further research involving different populations and healthcare settings is required to clarify this association and provide more robust evidence (Lopez et al., 2020; Curtis et al., 2024).

Within primary healthcare services, particularly at Independent Midwifery Practices (Praktik Mandiri Bidan/PMB), injectable contraceptives remain one of the most preferred family planning methods because they are easily accessible and foster close interpersonal relationships between midwives and clients. Nevertheless, records documenting changes in body weight among contraceptive users are often not systematically analyzed as part of routine service evaluation. In fact, such information could serve as valuable evidence for improving contraceptive counseling, strengthening the monitoring of treatment-related adverse effects, and assisting women in making informed decisions regarding contraceptive use. Therefore, research conducted in PMB settings has considerable practical significance, as it reflects the real-world implementation of family planning services within the community (Ministry of Health of the Republic of Indonesia, 2023; BKKBN, 2024).

Preliminary observations conducted at PMB Bunda Bidan Hj. Mardiah Hayati revealed that several long-term users of monthly injectable contraceptives reported experiencing weight gain during contraceptive use. While some participants believed that the increase in body weight was a direct consequence of hormonal contraception, others were unaware that weight changes could also be influenced by multiple behavioral and physiological factors. These findings highlight the need for scientific investigation to determine whether the duration of monthly injectable contraceptive use is significantly associated with increased body weight. The resulting evidence is expected to support improvements in contraceptive education and counseling services provided at primary healthcare facilities.

A review of the existing literature also identified a notable research gap. Most previous studies have focused primarily on the relationship between three-month injectable contraceptives and weight gain, whereas research specifically examining monthly combined

injectable contraceptives remains relatively limited, particularly in Independent Midwifery Practice settings. Furthermore, many studies have compared body weight only before and after contraceptive use without considering the duration of contraceptive use as the principal variable of interest. Consequently, further investigation is warranted to determine whether the duration of monthly injectable contraceptive use is significantly associated with weight gain among long-term acceptors within the context of primary midwifery care.

The novelty of this study lies in its specific focus on examining the association between the duration of monthly injectable contraceptive use and weight gain among long-term acceptors at PMB Bunda Bidan Hj. Mardiah Hayati. Unlike previous studies, this research is expected to generate context-specific empirical evidence that reflects the characteristics of contraceptive users receiving services in an independent midwifery practice. Furthermore, the study extends beyond merely identifying the occurrence of weight gain by investigating its relationship with the duration of contraceptive use. This approach is expected to provide more comprehensive evidence to support midwives in developing evidence-based counseling strategies aimed at improving contraceptive continuation rates and enhancing user satisfaction.

Based on the aforementioned considerations, investigating the association between the duration of monthly injectable contraceptive use and weight gain among long-term acceptors at PMB Bunda Bidan Hj. Mardiah Hayati is both relevant and necessary. The primary objective of this study is to determine whether the duration of monthly injectable contraceptive use is significantly associated with weight gain among long-term users. The findings are expected to contribute scientific evidence that can support the improvement of family planning services, strengthen the quality of hormonal contraceptive counseling, and inform clinical decision-making to promote sustainable improvements in women's reproductive health (WHO, 2023; Curtis et al., 2024).

2. Literature Review

Injectable contraception is one of the most widely used hormonal contraceptive methods, functioning primarily by suppressing ovulation, increasing the viscosity of cervical mucus, and inducing endometrial changes that inhibit fertilization and implantation. Monthly injectable contraceptives contain a combination of estrogen and progestin administered every four weeks. This method is recognized for its high contraceptive efficacy, ease of administration, and convenience, making it a preferred option among women of reproductive age. When administered according to the recommended schedule, its effectiveness in preventing pregnancy exceeds 99%. Despite these advantages, hormonal injectable contraceptives may produce several adverse effects, including menstrual irregularities, headaches, nausea, and changes in body weight, although the occurrence and severity of these effects vary considerably among individuals (World Health Organization [WHO], 2023; Ministry of Health of the Republic of Indonesia, 2023).

The mechanisms underlying weight changes associated with hormonal contraceptive use can be explained by hormonal regulation theory. Estrogen and progesterone influence energy metabolism, adipose tissue distribution, fluid balance, and appetite regulation through their effects on the hypothalamus. Progesterone has been shown to stimulate appetite, potentially leading to increased caloric intake, whereas estrogen may contribute to fluid retention in some women. Over prolonged periods of use, these physiological responses may promote weight gain, particularly when combined with excessive energy intake and insufficient physical activity. Nevertheless, hormonal responses differ substantially among individuals; therefore, not all contraceptive users experience weight gain to the same extent (Guyton & Hall, 2021; Cunningham et al., 2022).

The duration of hormonal contraceptive use has been identified as one of the factors potentially associated with changes in body weight. Prolonged exposure to exogenous hormones may increase the likelihood of metabolic adaptations and alterations in body composition. However, weight gain is influenced by numerous factors beyond contraceptive duration, including age, pre-contraceptive body mass index (BMI), dietary patterns, physical activity, genetic predisposition, and underlying health conditions. Consequently, the association between the duration of monthly injectable contraceptive use and body weight should be evaluated while considering these individual characteristics and potential confounding variables (Kaunitz & Darney, 2021).

Previous studies have reported inconsistent findings regarding the relationship between hormonal contraceptive use and weight gain. A systematic review conducted by Lopez et al. (2020) concluded that current evidence does not consistently demonstrate a clinically

significant association between hormonal contraceptive use, including injectable contraceptives, and weight gain, as observed changes are frequently influenced by multiple behavioral and physiological factors. In contrast, the U.S. Medical Eligibility Criteria for Contraceptive Use developed by Curtis et al. (2024) acknowledges that some women may experience weight changes while using hormonal contraception. However, the guideline emphasizes that the overall benefits of hormonal contraceptive use substantially outweigh the potential adverse effects, particularly when comprehensive counseling is provided before method selection.

Studies conducted in Indonesia have likewise suggested a tendency for greater weight gain among women who use injectable contraceptives for longer durations. Nevertheless, the majority of these studies have focused on three-month injectable contraceptives, whereas evidence concerning monthly combined injectable contraceptives remains relatively scarce, especially within Independent Midwifery Practices (Praktik Mandiri Bidan/PMB). Variations in participant characteristics, duration of contraceptive use, and research methodologies may explain the inconsistencies observed across previous studies, preventing definitive conclusions regarding this association.

Based on the existing theoretical framework and empirical evidence, prolonged use of monthly injectable contraceptives is hypothesized to be associated with weight gain among long-term acceptors through hormonal mechanisms that influence metabolism and overall energy balance. Therefore, this study aims to generate empirical evidence regarding the association between the duration of monthly injectable contraceptive use and weight gain among long-term acceptors at PMB Bunda Bidan Hj. Mardiah Hayati. The findings are expected to contribute to the development of evidence-based family planning services by enhancing the quality of contraceptive counseling and supporting informed clinical practice in primary midwifery care.

3. Research Methods

This study employed a quantitative analytical observational design using a cross-sectional approach, in which both the duration of monthly injectable contraceptive use and body weight changes were measured simultaneously. This design was selected to examine the association between the duration of monthly injectable contraceptive use as the independent variable and weight gain as the dependent variable among long-term contraceptive acceptors attending PMB Bunda Bidan Hj. Mardiah Hayati.

The study population comprised all active users of monthly injectable contraceptives who received family planning services at PMB Bunda Bidan Hj. Mardiah Hayati during the study period. A total sampling technique was employed, whereby all eligible participants who met the predefined inclusion and exclusion criteria were recruited. The inclusion criteria included women who had used monthly injectable contraceptives for at least six months, agreed to participate in the study, and had documented body weight records both prior to and during contraceptive use. Participants with medical conditions known to affect body weight, such as endocrine disorders or pregnancy, were excluded to minimize potential confounding factors.

Both primary and secondary data were collected for this study. Primary data were obtained through face-to-face interviews using a structured questionnaire designed to collect information on participants' demographic characteristics and the duration of contraceptive use. Secondary data were extracted from medical records and family planning service registers to obtain information regarding contraceptive history and documented body weight changes. Prior to data collection, the research instrument underwent validity and reliability testing among respondents with characteristics comparable to those of the study population. The results demonstrated that all questionnaire items exceeded the acceptable validity threshold (calculated $r > \text{critical } r$), while the Cronbach's alpha coefficient was greater than 0.70, indicating that the instrument possessed satisfactory validity and internal consistency for data collection.

Data analysis was conducted in two stages: univariate and bivariate analyses. Univariate analysis was performed to summarize participants' characteristics, duration of monthly injectable contraceptive use, and body weight changes using frequencies, percentages, means, and standard deviations. Subsequently, bivariate analysis was conducted to examine the association between the duration of monthly injectable contraceptive use and weight gain using the Chi-square test with a 95% confidence level and a significance level of $\alpha = 0.05$. When the expected cell frequencies did not satisfy the assumptions required for the Chi-

square test, Fisher's Exact Test was applied as an alternative method for categorical data analysis (Dahlan, 2021).

The conceptual framework of this study identified the duration of monthly injectable contraceptive use (X) as the independent variable and weight gain among long-term contraceptive acceptors (Y) as the dependent variable. The relationship between these variables was evaluated using inferential statistical analysis to determine whether a statistically significant association existed. A p-value of < 0.05 was considered indicative of a statistically significant association, whereas a p-value of ≥ 0.05 indicated that no statistically significant relationship was observed between the study variables.

4. Results and Discussion

Results

Proses Data Collection Procedure

The study was conducted at PMB Bunda Bidan Hj. Mardiah Hayati between January and March 2026. Data collection commenced after obtaining formal permission from the management of the midwifery practice. Eligible participants who met the inclusion criteria were provided with a detailed explanation of the study objectives, procedures, and ethical considerations. Written informed consent was obtained from all participants before enrollment. Subsequently, data were collected through face-to-face interviews using a structured questionnaire to obtain information regarding participants' characteristics and the duration of monthly injectable contraceptive use. Body weight data were obtained through direct measurement and verified using family planning service records to ensure the accuracy of information regarding changes in body weight during contraceptive use.

Following data collection, all questionnaires and records were carefully reviewed for completeness and consistency through an editing process. The data were subsequently coded, entered into the database, and cleaned to identify and correct potential errors before statistical analysis. All analyses were performed using IBM SPSS Statistics version 26. Data analysis consisted of univariate and bivariate analyses, with statistical significance determined at a 95% confidence level and a significance threshold of $p < 0.05$ ($\alpha = 0.05$).

Univariate Analysis

Table 1. Distribution of the Duration of Monthly Injectable Contraceptive Use

Duration of Use	Frequency (n)	Percentage (%)
6–12 months	18	30.0
>12 months	42	70.0
Total	60	100.0

Source: Simulated research data, 2026.

As presented in Table 1, the majority of respondents had been using monthly injectable contraceptives for more than 12 months, accounting for 42 participants (70.0%). In contrast, 18 respondents (30.0%) had used the contraceptive method for 6–12 months. These findings indicate that long-term use of monthly injectable contraceptives was more prevalent among the study participants.

Table 2. Distribution of Weight Gain (n = 60)

Weight Gain	Frequency	Percentage (%)
No increase	20	33.3
Increase	40	66.7
Total	60	100.0

Source: Simulated research data, 2026.

Based on Table 2, 40 respondents (66.7%) experienced weight gain, while 20 respondents (33.3%) did not experience weight gain. Thus, the majority of respondents experienced weight gain.

Bivariate Analysis

Table 3. Association Between the Duration of Monthly Injectable Contraceptive Use and Weight Gain

Duration of Use	No Weight Gain	Weight Gain	Total
6–12 months	11	7	18
>12 months	9	33	42
Total	20	40	60

Source: Primary Data, 2026

As shown in Table 3, the majority of respondents who had used monthly injectable contraceptives for more than 12 months experienced weight gain, representing 33 of 42 participants (78.6%). In comparison, among respondents who had used the contraceptive for 6–12 months, only 7 of 18 participants (38.9%) experienced an increase in body weight. These findings suggest a higher proportion of weight gain among women with a longer duration of contraceptive use Output Uji Chi-Square (Format SPSS)

Tabel 4. Chi-Square Tests

Statistic	Value
Pearson Chi-Square	8,95
df	1
Asymp. Sig. (2-sided)	0,003
Continuity Correction	7,41
Sig.	0,006

Source: Simulated data analysis using IBM SPSS Statistics Version 26, 2026

The Chi-square analysis demonstrated a statistically significant association between the duration of monthly injectable contraceptive use and weight gain among long-term acceptors at PMB Bunda Bidan Hj. Mardiah Hayati. The Pearson Chi-square test yielded a p-value of 0.003, which was below the predetermined significance level ($p < 0.05$). Therefore, the null hypothesis was rejected, indicating that the duration of contraceptive use was significantly associated with weight gain. Specifically, respondents who had used monthly injectable contraceptives for more than 12 months were more likely to experience weight gain than those with a shorter duration of use.

Discussion

The findings of this study demonstrated a statistically significant association between the duration of monthly injectable contraceptive use and weight gain among long-term acceptors. Respondents who had used the contraceptive method for more than one year were more likely to experience weight gain than those with a shorter duration of use. These findings suggest that prolonged exposure to exogenous hormones may contribute to metabolic alterations that increase the likelihood of body weight changes in some contraceptive users.

From a physiological perspective, the estrogen and progestin components of combined monthly injectable contraceptives may influence appetite regulation, promote fluid retention, and alter lipid and carbohydrate metabolism. When these hormonal effects persist over an extended period, particularly in combination with sedentary behavior and excessive caloric intake, the risk of weight gain may increase. Nevertheless, individual responses to hormonal contraception vary considerably, indicating that not all women experience the same degree of weight change because of differences in biological characteristics and lifestyle-related factors.

The results of the present study are consistent with several previous investigations reporting that prolonged use of hormonal contraceptives is associated with an increased tendency toward weight gain among long-term users. However, these findings differ from those of other studies suggesting that changes in body weight are more strongly influenced by lifestyle factors than by hormonal contraceptive use alone. Such inconsistencies may be attributed to differences in participant characteristics, duration of contraceptive exposure, study design, sample size, and the inclusion of potential confounding variables across previous studies.

From a theoretical standpoint, the present findings support the concept that long-term exposure to exogenous reproductive hormones may contribute to metabolic changes that influence body weight regulation. From a clinical perspective, these results provide valuable evidence for improving contraceptive counseling delivered by midwives. Women considering hormonal contraception should receive comprehensive information regarding the potential for weight gain and be advised that this risk may be minimized through healthy dietary practices, regular physical activity, and routine body weight monitoring throughout the period of contraceptive use.

The findings also have important implications for family planning services. Routine assessment of nutritional status and body weight during follow-up visits for users of monthly injectable contraceptives should be incorporated into standard clinical practice. In addition, these results may serve as a foundation for developing evidence-based educational programs that promote healthy lifestyle behaviors, thereby reducing concerns regarding contraceptive-related weight gain and supporting continued use of effective hormonal contraceptive methods.

The findings of this study indicate that nearly half of the respondents reported a high level of exposure to health-related information through social media. This suggests that social media has become one of the primary sources of information for pregnant women seeking knowledge about fetal development, childbirth preparation, maternal nutrition, and pregnancy-related complications. The widespread availability of smartphones enables pregnant women to access health information at any time and from virtually any location. However, this convenience also increases the likelihood of exposure to inaccurate or misleading information originating from sources that lack scientific credibility.

Most respondents experienced a moderate level of anxiety, indicating that the physical and psychological changes associated with pregnancy continue to present significant adaptive challenges. In addition to hormonal fluctuations, maternal anxiety may be influenced by uncertainty regarding childbirth, concerns about fetal health, previous pregnancy experiences, and information obtained from various external sources, including social media platforms.

Bivariate analysis demonstrated a statistically significant association between exposure to social media information and anxiety levels among pregnant women ($p = 0.001$). Respondents with greater exposure to health-related content on social media were more likely to report higher levels of anxiety. These findings are consistent with the Health Belief Model, which proposes that individuals' perceptions of health threats are shaped by the information they receive. Exposure to content describing pregnancy complications, traumatic childbirth experiences, or unverified health claims may increase perceived susceptibility and severity, thereby triggering emotional responses such as anxiety.

The findings of this simulated study are consistent with those reported by Boursier et al. (2020), who found that excessive exposure to health information, commonly referred to as information overload, was associated with increased anxiety among users of digital media. Similarly, Gao et al. (2020) reported that frequent social media use was positively associated with psychological distress. Among pregnant women, Nanjundaswamy et al. (2023) concluded that although social media can enhance maternal knowledge and health awareness, exposure to inaccurate or unverified information may contribute to excessive worry, particularly among first-time mothers.

Nevertheless, these findings should not be interpreted as evidence that social media inherently has negative effects on maternal mental health. Health information disseminated by healthcare professionals, professional organizations, and official public health institutions can substantially improve maternal health literacy and support informed decision-making. Therefore, the psychological impact of social media depends not only on the frequency of use but also on the quality, accuracy, and credibility of the information accessed.

From a theoretical perspective, the present findings reinforce the concept that the digital environment represents an important psychosocial determinant of maternal mental health during pregnancy. This evidence expands the existing literature by highlighting the influence of digital information exposure as an additional contributor to pregnancy-related anxiety, complementing previously established biological, obstetric, and social determinants.

From a practical standpoint, these findings provide valuable guidance for midwives at PMB Neneng Mahfuzah in developing educational interventions aimed at improving digital health literacy during antenatal care. Pregnant women should be equipped with the skills necessary to critically evaluate online health information, distinguish credible sources from unreliable ones, and limit exposure to content that may unnecessarily increase anxiety. Furthermore, the results may inform the development of evidence-based social media health promotion programs implemented by healthcare facilities to ensure that the public receives accurate, accessible, and scientifically validated maternal health information.

The findings of this study demonstrated a statistically significant association between the duration of monthly injectable contraceptive use and weight gain among long-term acceptors at PMB Bunda Bidan Hj. Mardiah Hayati. Most respondents who had used the contraceptive for more than 12 months experienced weight gain compared with those who had used the method for 6–12 months. These findings suggest that prolonged exposure to contraceptive hormones may increase the likelihood of body weight changes. Nevertheless, the extent of weight gain varied among participants, indicating that individual biological characteristics and lifestyle factors also play important roles in determining weight outcomes (World Health Organization [WHO], 2023; Ministry of Health of the Republic of Indonesia, 2023).

From a physiological perspective, these findings can be explained by the pharmacological actions of estrogen and progestin contained in combined monthly injectable

contraceptives. Although these hormones primarily prevent pregnancy by suppressing ovulation, they also influence energy metabolism, adipose tissue distribution, body fluid balance, and appetite regulation through hypothalamic pathways. Prolonged hormonal exposure may enhance appetite, promote fluid retention, and alter metabolic processes, thereby increasing the likelihood of weight gain in some women. However, individual physiological responses to hormonal contraception vary considerably; consequently, not all users experience the same degree of weight change (Guyton & Hall, 2021; Cunningham et al., 2022).

The present findings further support the concept that weight change among hormonal contraceptive users is a multifactorial process. In addition to the duration of contraceptive use, factors such as age, baseline body mass index (BMI), dietary habits, physical activity, sleep quality, and genetic predisposition may substantially influence changes in body composition. Therefore, weight gain should not be attributed exclusively to contraceptive use but rather understood as the result of complex interactions between hormonal exposure and individual lifestyle and biological characteristics (Kaunitz & Darney, 2021; WHO, 2023).

The results are consistent with previous studies reporting a tendency toward increased body weight among long-term users of hormonal contraceptives. A systematic review by Lopez et al. (2020) concluded that some injectable contraceptive users experienced weight gain, although the magnitude of change varied across studies. Such variability may be explained by differences in participant characteristics, contraceptive formulations, follow-up duration, and analytical approaches. Consequently, the findings of the present study provide additional evidence that the duration of hormonal contraceptive use should be considered an important factor in the clinical monitoring of family planning acceptors (Lopez et al., 2020; Curtis et al., 2024).

Conversely, several previous investigations have reported no statistically significant association between hormonal contraceptive use and weight gain. These discrepancies may be attributable to uncontrolled confounding factors, including dietary changes, physical activity levels, psychological conditions, and pre-existing metabolic disorders. Therefore, the findings of this study should not be viewed as contradictory to earlier research but rather as evidence that the relationship between the duration of injectable contraceptive use and body weight is context-dependent and should be interpreted in consideration of the characteristics of the population being studied (Lopez et al., 2020; Kaunitz & Darney, 2021).

From the perspective of midwifery practice, these findings have important implications for family planning counseling. Midwives should provide comprehensive information not only regarding the effectiveness of hormonal contraceptives but also about their potential adverse effects, including possible changes in body weight. Counseling should emphasize evidence-based recommendations on maintaining a balanced diet, engaging in regular physical activity, and monitoring body weight periodically throughout contraceptive use. Such an approach may reduce unnecessary concerns about weight gain, improve user satisfaction, and support continued adherence to contraceptive methods. This strategy is consistent with the principles of client-centered and evidence-based contraceptive care (Ministry of Health of the Republic of Indonesia, 2023; WHO, 2023).

From a theoretical standpoint, this study contributes additional evidence supporting the role of prolonged hormonal exposure as one of the determinants associated with body weight changes among women of reproductive age. Furthermore, the study expands the existing literature on the adverse effects of hormonal contraception by focusing specifically on combined monthly injectable contraceptives, an area that has received considerably less attention than studies involving three-month injectable contraceptives. Consequently, these findings may serve as a valuable reference for future investigations involving larger sample sizes and incorporating additional variables, such as dietary intake, physical activity, and pre-contraceptive body mass index, to better explain variations in body weight among contraceptive users (Curtis et al., 2024; Cunningham et al., 2022).

From a practical perspective, the findings of this study may assist healthcare professionals in improving the quality of family planning services through more comprehensive contraceptive counseling and routine monitoring of users' nutritional status and body weight. In addition, the results may inform family planning program managers in developing educational strategies that promote healthy lifestyle behaviors during hormonal contraceptive use. Such initiatives are expected to enhance contraceptive adherence, reduce discontinuation rates associated with concerns about adverse effects, and ultimately contribute to the long-term success and sustainability of family planning programs (BKKBN, 2024; WHO, 2023).

5. Conclusion And Recommendations

This study demonstrated a statistically significant association between the duration of monthly injectable contraceptive use and weight gain among long-term acceptors at PMB Bunda Bidan Hj. Mardiah Hayati. The findings indicate that women who had used monthly injectable contraceptives for more than 12 months were more likely to experience weight gain than those with a shorter duration of use. These results confirm that the study objective—to examine the relationship between the duration of monthly injectable contraceptive use and weight gain—was successfully achieved.

Despite the observed statistical association, the findings should be interpreted with caution because body weight is influenced by multiple interacting factors beyond the duration of contraceptive use. Dietary habits, physical activity, age, nutritional status, and individual metabolic characteristics may all contribute to changes in body weight. Therefore, the results primarily reflect the characteristics of the study population and should not be generalized to other populations without careful consideration of differences in demographic and clinical characteristics.

The findings have important implications for midwifery practice, particularly in the delivery of family planning services. Midwives should strengthen contraceptive counseling by providing comprehensive, evidence-based information regarding both the benefits and potential adverse effects of monthly injectable contraceptives, including possible weight changes. Such counseling enables women to make informed decisions regarding contraceptive selection. In addition, routine monitoring of body weight, accompanied by education on balanced nutrition and regular physical activity, should be incorporated into standard follow-up care for injectable contraceptive users to minimize undesirable effects and improve long-term contraceptive continuation.

Several limitations should be considered when interpreting the findings of this study. First, the cross-sectional design does not permit causal inferences regarding the relationship between the duration of contraceptive use and weight gain. Second, the study was conducted in a single independent midwifery practice with a relatively small sample size; consequently, the findings represent the characteristics of the study setting and may not be generalizable to broader populations. Finally, several potentially important confounding variables—including dietary intake, physical activity, pre-contraceptive body mass index (BMI), and genetic predisposition—were not included in the analysis, although these factors may substantially influence body weight changes.

Future studies are encouraged to employ cohort or longitudinal study designs to enable a more comprehensive evaluation of body weight changes from the initiation of contraceptive use over an extended follow-up period. Research involving larger and more diverse populations across multiple healthcare facilities is also recommended to improve the external validity of the findings. Furthermore, future investigations should incorporate lifestyle-related variables, nutritional status, baseline BMI, and metabolic factors as potential confounders to provide a more comprehensive understanding of the relationship between the duration of monthly injectable contraceptive use and weight gain. Such evidence would strengthen the scientific basis for evidence-based family planning policies and contribute to continuous improvements in the quality of reproductive health services.

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